

Clinical Section

Peripheral Vascular Disease

By

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Unusual attention has been directed toward the problems of peripheral vascular disease in the past decade. One is forced to admit that our surgical confreres are in great measure responsible for this intense interest.

I think both physiologist and clinician will admit that the catholic interest of the surgeon in the field of autonomic nervous system has greatly clarified our knowledge of these disorders.

We owe a still greater debt to Buerger, Sir Thomas Lewis, Allen, Brown, Landis, Herman and Reid, whose painstaking labours in this field have been prodigious.

There is an old adage that we see only what we are looking for. No group of disorders is more accessible to the eyes and fingers than those of the extremities, and yet they have been neglected for many years.

With advances in our knowledge, the pessimistic attitude of our forbears toward the treatment of these afflictions has been replaced by one of hope and optimism. The incidence of amputation in Buerger's disease has been tremendously reduced in the larger centres. In fact, the surgeon who amputates an extremity today is keenly anxious to justify his action.

While the eye and the fingers can tell us much about these disorders, the history of the case is often invaluable, such as, the relation of color changes to cold, and the symptoms of inadequate circulation which are often insidious. Coldness, tingling, occasional paraesthesiae and pain may be overlooked.

Cramping, severe pain, and intermittent claudication cannot be disregarded. Rest pain is a terminal symptom in peripheral vascular disease. Claudication may occur only in a toe or a finger. Sometimes, if only in the sole of the foot, the patient is treated for fallen arches. Acute occlusions of the arteries may occur with dramatic suddenness. Often they are painful, but in 40 per cent of cases there is no actual pain. The striking similarity of the symptoms of the obstructive arterial lesion to those of coronary disease with angina pectoris and finally coronary thrombosis will be seen. There is this important difference. We cannot palpate the coronary arteries.

From clinical observation of these cases alone much can be learned by the use of the eyes and the fingers. One can observe the thickening and hypertrophy of the nails, often afflicted with ringworm. The shiny, glossy, inelastic skin in

the arterio-sclerotic case, the pigmentation, the ulceration, infection, gangrene, or associated phlebitis.

Changes in color may be noted either in response to cold (the three phase color reaction of Raynaud's disease) or with altering the position of the limb.

When arterial obstruction exists, elevation of the limb causes an ischaemic pallor approaching that of the cadaver. This is hastened by rapid movement of the ankle. As the limb is lowered from the vertical there comes a point when color returns to the skin. At this point, the angle which the limb forms with the perpendicular was called by Buerger the angle of vascular sufficiency. The optimal position of the legs must be found for each obstructive case but it is usually 20 to 30 degrees below heart level, a point of value in treatment. Lowering the limb to a dependent position causes an intense purplish discoloration or rubor. Such changes do not occur with normal circulation. Changes in temperature are easily noted by the hand alone, the back of which can appreciate differences as close as 0.5 degrees C. or by a simple skin thermometer, if care is used. The thermocouple is, of course, much more accurate. Skin temperature will vary with the mouth or room temperature and with the humidity. It should be taken at 70° and after the limbs have been exposed to the air for 30 minutes.

The value of skin temperatures is limited to:—

- (a) The sudden drop in temperature of one extremity as a sign of acute arterial occlusion.
- (b) Marked differences between symmetrical areas or two extremities, or
- (c) A rise in temperature after tests which relieve vaso-constriction.

Perhaps the most useful part of the physical examination is the palpation of the arteries. The accessible arteries should be examined routinely in every case, but how often is their condition noted in a history.

The pulsations may be graded in a simple way and the degree of arteriosclerosis or thickening also observed. Absence of pulsations of course means either obstructive arterial disease or an aberrant artery. The important arteries to examine are the brachial, radial, ulnar, femoral, popliteal, dorsalis pedis and posterior tibial.

The brachial artery is most accessible in its upper $\frac{2}{3}$ where it may be felt and compressed outwards against the humerus. With the elbow flexed it may be felt close to the bend of the elbow by palpating close to the medial border of the biceps.

At times the radial artery is aberrant and is replaced by a superficial volar branch which is very slender and may give a false impression of pulsation.

The femoral artery is best felt just below the interior edge of Poupart's ligament where it may be compressed against the brim of the pelvis.

The popliteal artery is best felt with the patient lying prone, the leg flexed and relaxed at right angle. The artery passes through the middle of the popliteal space and is best felt in its upper portion. In stout people it is often not possible to palpate it. In these cases we may try this procedure—the knees are crossed so that the popliteal space is supported by the patella of the other leg, a transmitted motion of the foot occurs if the popliteal artery is pulsating.

The posterior tibial artery may be felt at the inner side of the ankle behind the internal malleolus. Sometimes it is not felt in normal individuals.

The dorsalis pedis artery is not felt in 4 per cent of normal subjects. In 8 per cent it is more lateral than the usual location along a line running upward from between the great and second toes.

Probably the best classification of these disorders has been modified from that of John Fraser:

A. Capillary disorders:

- (1) Acrocyanosis
- (2) Erythromelalgic type of disorder (Erythralgia)

B. Arterial disease

(1) Spasmodic

- (a) Raynaud's disease
- (b) True erythralgia

(2) Obstructive

- (a) Inflammatory Buerger's with or without vasomotor spasm
- (b) Degenerative arterio-sclerosis (no spasm) with or without diabetes

(3) Acute occlusions

- (a) Emboli
- (b) Thrombosis (acute)

With this simple classification in mind let us go on to the study of some physiological facts.

We have been accustomed to consider the vascular system upon a well ordered plan of arteries, arterioles, capillaries, venules and veins through which the blood courses to and from the heart. Grant and Bland have shown that direct anastomoses exist in the skin of the hands and feet. Direct channels occur between arteries and veins excluding the capillaries. These are most numerous in the palm, sole and at the end of the digits.

Another significant point R. T. Grant has shown is that these areas are the site of a very profuse distribution of sympathetic nerve fibres. They react violently to various stimuli (dilating to cold, histamine, etc., contracting to adrenalin).

This brings us to a consideration of the process of vaso-constriction.

A stimulus may be originated in a number of ways:

- (a) An emotion relayed through the thalamus may initiate a widespread response.
- (b) An emotion may activate the adrenals causing a sympathetic stimulus. Usually, however, a peripheral stimulus is conveyed by efferent nerves. It is relayed through the cord to the rami-communicantes, thence to sympathetic ganglia and the peripheral vessels.

There is convincing evidence by Lewis and his co-workers that local vaso-dilatation occurs in response to a biochemical reaction. A stimulus causes actual damage to the skin releasing an H substance closely resembling histamine and acetylcholine. This may act in two ways (1) directly on the capillary wall and (2) by an axone reflex, that is, a stimulus from the sensory nerves of the skin is reflected directly along the collateral twigs in the affected area. What are the reactions of the normal skin to cold. These normal responses are similar to those seen in disease. They are ably summarized by Fraser.

If we place the hand in cold water 15°C—15 to 20 minutes.

- (a) The surface temperature of the skin falls to within 5°C of water.
- (b) The surface blanches—muscular activity is sluggish due to vaso-constriction of entire vascular bed. This is a protective mechanism against loss of heat due to a reflex through the cord to the sympathetics and thence to the blood vessels.

If we now place the hand in water of lower temperature, say 10°C.

There is a preliminary pallor and fall in temperature due to vaso-constriction of the arterioles.

This is rapidly followed by a stage of cyanosis. Here another factor is now at work. There is liberation of the H. substance causing capillary and arterio-venous dilatation. At this temperature there are two color reactions, white and blue. The white stage due to reflex arteriolar constriction, the blue to capillary dilatation.

If we now place the hand in water of a still lower temperature—5°C.

The hand aches painfully.

The skin temperature falls to 2° of medium.

At first there is pallor due to generalized vaso-constriction.

Secondly, cyanosis due to liberation of H substance and capillary dilatation.

Thirdly, after about 5 minutes the hand becomes a bright red color.

Why the red color at this low temperature? Unusually low temperature affects the oxygen exchange between vessels and tissues and arterial blood trickles through capillaries into veins. At this low temperature we have the 3 phase color reaction, white, blue and red occurring in normal skin.

Clinical Considerations.

It is difficult to fit the clinical disorders in with many of these physiological facts. We are all familiar with the syndrome now called acro-cyanosis.

Acrocyanosis is fairly common. It occurs usually in females. Upon exposure to cold the hands and feet become cold, the movements of the fingers impaired and the skin becomes deep blue in color. If the parts are now heated they become warm, red, painful and swollen.

Red, tender, itchy patches may remain at the pressure points—commonly called pernio or chillblains.

There is a certain resemblance here to the reactions of the normal skin to cold just described. In these susceptible individuals, however, a slighter degree of cold calls forth a severe response. The skin is unduly susceptible to cold and a response similar to that seen with normal skin is called forth at temperatures much above 10°C. The cyanosis is due to sluggish blood flow, diminished oxygen, and increased CO₂. Cold is definitely a factor in the acrocyanotic group.

Another type of disorder is of the *Erythromelalgic* type, usually mild. The cold factor is not so evident here but common to all cases is the bright red skin. The skin is exactly like the hands of a child who has been throwing snowballs. The parts are cold, have a bright red color, and when warmed there is intense discomfort.

When the feet are affected the intense warmth and throbbing of this stage force the victims to keep their feet uncovered in bed. This is probably a similar reaction to that of the normal skin to very low temperature. The capillaries are dilated, the rate of flow retarded by arteriolar constriction, oxygen exchange interfered with, arterial blood trickles through to the veins or is side-tracked by direct anastomosis from arteriole to veins. Sympathectomy is not only unjustified in these mild types but is of little value. Apart from protecting the part from cold there is little to do.

Calcium has been used in acrocyanosis and sulphur, which is said to counteract the H substance, may be applied to the affected areas in the form of ointment.

We now come to the disorders and diseases of the arteries which may be termed the spasmodyc group. There are many who believe still in the vaso-motor hypothesis in so far as these diseases are concerned. Raynaud believed that vasomotor overaction was the cause of the disease which bore his name. This view was put forward in 1862, a few years after the vaso-constrictor nerves were first discovered. Having excluded gross disease and eliminated ergot, he naturally used the new idea of disordered innervation. Lewis does not believe that this vasomotor reflex is responsible in toto but that a local fault of the blood vessels due to unusual sensitivity to cold closes the digital blood vessels and that this is the primary cause.

To put the controversial point more clearly. There are two schools of thought.

- (1) That there is abnormal vaso-constriction of central origin through reflex disturbance.
- (2) That the vaso-constriction is of local origin.

If you believe the first, sympathectomy should produce twice the vaso-dilatation it will if you believe the second theory, but in any case relaxation occurs.

Of the spasmodyc diseases, which are accompanied by vaso-dilatation, we have a rare type:

Erythromelalgia. Weir Mitchell described this syndrome in 1872. The description of this type of disorder was obscure, not clear cut. One definition is that "It is a chronic condition of painful redness of the extremities, usually the feet, in which burning pain is brought on by heat or exercise, aggravated by dependent posture, and relieved by elevation or cold." Lewis does not believe this to be due to a vasomotor disturbance but to be similar to the reaction of the skin to agents which cause local injury, such as ultra-violet light, mustard, etc. It is a local malady, rare in its severe chronic forms, common in its mild or early ones. The skin is unusually susceptible to certain forms of injury in these individuals.

In a series of 147 cases of uncomplicated Raynaud's disease observed by Brown, only 11 per cent were males. The average age at onset was in the third decade. The most important clinical feature is the three phase colour reaction which is induced by cold.

These reactions are almost exactly comparable to the normal skin reactions to cold just described. There is this important difference; it requires a very slight stimulus to bring on a severe attack. The skin and blood vessels of these patients are hypersensitive. With repeated attacks, chronic cyanosis, trophic changes, brittle nails, sclerodermia and minute symmetrical areas of gangrene may occur.

The important features of these cases are the peculiar sex incidence, the symmetrical, spasmodyc nature of the attacks, the three phase colour reaction and, most important of all, the presence of normal pulsations in the larger arteries. Treatment consists chiefly in protection from cold, the empirical use of calcium and in the severe cases, sympathectomy must be considered.

Let us now consider the obstructive lesions. The common and important sign of these lesions is the diminished or absent pulsations in the larger arteries. There are two main types, one which occurs in youth or middle age, i.e., thrombo-angiitis obliterans or Buerger's disease and one occurring at a more advanced age, namely, arteriosclerosis obliterans.

Buerger's disease is a chronic relapsing inflammatory disease of the vessels in which occlusion and collateral circulation struggle for supremacy.

A coincident phlebitis occurs in about 30% of cases. The racial incidence is now said to be about 30% Jewish and 70% Gentile. 99% of cases occur in males mostly between the ages of 25 and 50 years. Time will not permit a full discussion of the features of Buergers disease, but it is well to remember that in many cases there is an associated vasospasm of the arterioles which, when relieved by appropriate treatment, the patient may be tided over an acute crisis or threatened gangrene. In arteriosclerosis, on the other hand, vasospasm of the arterioles is rarely noted, in fact actual sclerosis of the arterioles is commonly found. Ordinary dilatory measures consequently have little effect.

Apart from these differences, the treatment of obstructive vascular lesions is very similar.

It is said that 50% of gangrene is caused by some avoidable injury and patients with impaired circulation should receive the careful instructions of Brown and Allen, Hermann and Reid.

They must avoid crushing, bruising and injuring the feet or toes; wear comfortable shoes and soft woolen socks. Many cases of gangrene are caused by the use of strong antiseptics such as iodine or liniments for the cure of athlete's foot. Rest, with the legs at the angle of optimal sufficiency, is of great importance. The use of tobacco is discouraged in Buergers disease. There are many measures of use in relaxing vasospasm. Local heat is of value in the form of a light cradle but the temperature should be kept below 105° F. The postural exercises of Buerger and Allen and contrast baths of hot and cold water are of use in certain cases. Vaccine treatment with Lederles triple typhoid vaccine will dilate the smaller blood vessels in many cases, but general reactions must be avoided.

Tissue extract No. 568, an insulin free pancreatic extract given according to the method of G. E. Brown, has increased the claudication time in some of my cases. It apparently has little or no effect on the collateral circulation. I have had no experience with the 3% saline injections of Gilbert and Samuels. The reports are encouraging.

In very carefully selected cases sympathetic ganglionectomy may increase the collateral circulation. The selection of the case depends among other things upon the degree of vasospasm as measured following the fever test or after spinal anaesthesia. One case now under my care is of interest. A woman, age 29, was seen in May, 1929, by Dr. Adson. At that time she had bilateral pain in the legs on exertion, duration one year. The pulsations were diminished 25% in the radials; 75% in the right and 50% in the left leg. There was marked postural blanching and rubor. The blood pressure was 132/80. A diagnosis of Buergers disease was made and vaccine therapy tried with little result. In January, 1930, a bilateral lumbar sympathectomy, ganglionectomy and trunk resection was done by Dr. Adson.

I saw her first in March, 1936. 6 years later, the pulsations in the arteries were approximately the same. The feet were warm, dry, and there were no postural colour changes. The hands, on the other hand, were cold, moist and bluish. There were no symptoms referable to the extremities. The blood pressure at this time was 240/120, an essential hypertension.

Points of interest in this case:

1. The occurrence of the disease in a woman (only 11 cases have been recorded in women).
2. The marked relief from sympathectomy.
3. The coincident development of essential hypertension.

SUMMARY OF CASES

The histories of 31 cases of peripheral vascular disease have been studied during the past year, most of which have been seen personally on the hospital wards.

Arteriosclerosis was the cause of symptoms in twenty-three cases. Their average age was 62 years. Diabetes was associated in 8 per cent. Buergers disease occurred in 8 cases. The average age of these was 42. Amputation was done in 10 cases with an incidence of 30%. We are not proud of these figures. Much lower figures are given by other large centres.

Such cases in our community are admitted to hospital late. The public in Canada has not been educated about the seriousness of these lesions. They will rush to a doctor about a pain in the chest but are much more likely to go to a chiropodist for pains in the feet. Gangrene was precipitated in 4 cases by the use of strong antiseptics. In two of these cases strong salicylic acid was applied to corns by chiropodists ignorant of the presence of diseased arteries.

The passive vascular exercises of Landis, Gibbon, Hermann and Reid were tried in 14 cases. Very good results were obtained in 11 cases and doubtful results in three. There was a definite increase in claudication time, improvement in color and temperature in the eleven cases. The results were far better in the arteriosclerotic group than in those with Buergers disease, although the figures are too few for accurate comparison. The Paevek treatment to be effective must be applied at regular and frequent intervals to obtain encouraging results.

In our series of cases one hour of treatment three times a week was the minimum. Paevek should not be used in the presence of phlebitis, when gangrene occurs far above the limits of the foot or if there is thrombosis of the femoral arteries.

We have used Paevek in several cases of acute occlusion of a vessel due to embolism or thrombosis. One of these cases is of interest:

Case J. C.—Age 40, had had a mitral stenosis for many years with lately some heart failure. He was seen 6 hours after a sudden loss of sensa-

tion with numbness in the left leg. There was no pain. In 40% of such cases there is no pain.

On examination the left leg was deathly pale, 4° colder than the right and the pulsations were completely absent from the popliteal artery down. Embolectomy was not considered because of the degree of heart failure. One half grain of papaverine hydrochloride was given intravenously with no apparent result. The leg was placed in the Paevek boot at the 7th hour and intermittent positive and negative pressure applied 8 hours daily for some weeks. There was immediate improvement in color and movement when in the boot. Gangrene did not occur in this case.

CONCLUSIONS

In my opinion the prevention of gangrene in occlusive vascular disease depends upon—

1. Early diagnosis of the condition.
2. Early and persistent education and training of the patient in the care of his feet.
3. The use of special methods of treatment which increase the collateral circulation.

It is time that we realized the importance and frequency of these lesions and the methods of preventing acute catastrophes. The public are no longer satisfied with amputation as the sole form of treatment in these diseases.

*General Directions to Patients For the Care of the Feet

The circulation in your feet can be greatly improved by increasing the number and size of the smaller arteries (the detour arteries). Gangrene and other catastrophes may be avoided in a large percentage of cases by careful observance of the following rules:—

INJURY

More than 50% of the gangrene which sometimes occurs in cases like yours is caused by some avoidable injury:—

- (1) Crushing, bruising of the feet or toes, scratches, cuts, skin cracks, blisters, burns and frost bite must be avoided.
- (2) Wash feet each night with a mild face soap and water.
- (3) Dry feet with a clean soft towel without rubbing the skin.
- (4) Apply vaseline or lanoline and massage the feet each night.
- (5) Do not use hot water bottles, electric pads or any other mechanical heating device.
- (6) Wear comfortable shoes which do not pinch or rub—shoes of soft leather are best. New shoes should be worn only one hour a day for the first week.
- (7) Toe nails should be cut straight across in a good light after cleansing feet.
- (8) Corns, callouses, and bunions should not be cut.

- (9) Untrained or ignorant chiropodists may cause loss of a leg if they do not recognize the impaired circulation.
- (10) Do not wear circular garters or sit with the legs crossed.
- (11) Minor operations on the toes cause many cases of gangrene.
- (12) Remember that cold or heat are dangerous to those with impaired circulation.
- (13) 30% of cases of gangrene are caused by strong antiseptics, particularly by iodine, lysol, carbolic acid, strong ointments and liniments for "athletes foot," etc.
- (14) If you unavoidably injure or burn your feet, call your physician immediately. Similarly with blisters, painful corns, etc.
- (15) Athletes foot must be avoided at all costs. Such infection may be picked up in public showers at beaches, hotels and golf clubs.
- (16) Drink from three to four quarts of water daily if the kidneys and heart are normal.
- (17) **Do not use tobacco** in any form.
- (18) Carry out the exercises and special treatment as prescribed.

HOME TREATMENT

1. **Rest** is the most important thing when the circulation is impaired. If ulceration or infection occurs, it may be necessary to rest in bed for considerable periods.

2. Postural Exercises.

- (a) Lie on your back on a bed or couch and elevate the feet to a vertical position until the bad foot becomes white (blanched).
- (b) Sit on the edge of the bed with the legs hanging down over the side till the color begins to return to the feet.
- (c) Lie on your back with the legs in a horizontal position for one minute.

Repeat these three manoeuvres four or five times, a total of ten minutes a day.

3. **Contrast Baths:** Place cold water in a container large enough to immerse both feet to the mid leg. The temperature of the water should be 40°—50° F. Hot water of 102°—105° F is placed in another container. Put foot in hot water 1 minute, then in cold water 30 seconds and repeat five to ten times. A bath thermometer must be used. Contrast baths are never used when ulceration, infection or gangrene is present. If the feet become soggy, the baths must be discontinued.

4. Other special methods of treatment will be individually prescribed.

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Narcotics

There has just come to our hands the report of the Narcotic Division of the Department of Pensions and National Health for the year ending March 31st, 1936. This is an excellent report which might be read with interest by every physician in Canada. Of particular interest to the medical profession are the following extracts which we have taken the liberty of quoting from the report:

"The co-operation with the medical profession has continued to be very close, and we are greatly indebted to many members thereof for their assistance and co-operation in relation to cases of addiction which, not having underworld associations, offered reasonable prospects of cure. The facilities of the Ontario Hospitals, rendered available by recent provincial legislation, have been utilized to a considerable extent in that connection, and have aided materially in the constructive work which is possible along that line."

"There are now two provinces, Manitoba and British Columbia, in which amendments to the Provincial Pharmacy Acts have ensured that straight codeine shall

only be sold by retail druggists on medical prescription. This is a most useful provision."

"During the year it became necessary to prosecute two physicians. One case, involving circumstances which clearly indicated illicit intent, resulted in a sentence of four years' imprisonment, while the other, in connection with which narcotics were sold to a perfectly healthy person on a number of occasions, resulted in a fine of \$200 or three months' imprisonment."

While it is regretted that the authorities found it necessary to take action against two physicians, it is a matter of congratulation to the profession in that two out of a medical population of approximately 11,000 indicates a very splendid record for the profession as a whole.

THE COLLEGE OF PHYSICIANS AND SURGEONS OF MANITOBA

A word of warning to the members of the medical profession who may be called upon to issue liquor prescriptions.

Recently there have been a number of physicians prosecuted and fined for irregularities in contravention of the Government Liquor Control Act. For this reason, I would call your attention to the back page of the "Authorized Physician's Liquor Prescription" pad, particularly the last paragraph. I would suggest if you are not familiar with The Government Liquor Control Act, that you read Section 56 of the same.

W. G. CAMPBELL,
Registrar.

FRIEDMAN PREGNANCY TEST

This test is carried out in the Department of Biochemistry at the Medical College, Winnipeg, under the direction of a special sub-committee of the University of Manitoba Medical Research Committee.

In two cases during the past year there seemed to be the possibility that the result of the test might be used in legal proceedings. The sub-committee has, therefore, directed me to bring to the attention of the medical profession the necessity, where legal proceedings are potentially involved, of taking as elaborate precautions as, for example, those required in the examination of stomach contents in death from suspected poisoning.

In such a case it is absolutely essential that the doctor sending in the specimen of urine take such steps as will permit certification on oath by some definite person that the urine received by the Department of Biochemistry from him, or mailed to the undersigned under registered cover, is the urine of the person for whom the test is supposed to be made, and further, that we be notified in advance of the possibility of legal proceedings, so that similar certifiable control by one person be employed during the test.

We naturally are not anxious to have such cases to deal with, but, when they do arise, it would seem obvious that without the precautions just outlined the results of the test could easily be ruled out in law, on grounds of unproved identity of the source of the urine sample. Hence, if our assistance is needed, the physician concerned is requested to take the necessary steps to render that assistance effective.

It is hoped to present a short resumé of the last year's work with the test at an early date.

A. T. CAMERON,
Secretary, Medical Research Committee,
University of Manitoba.

A Suggested Outline for the Three-Day Post-Graduate Course

OBSTETRICS AND GYNAECOLOGY

This Course be held, February 17, 18, 19, Wednesday, Thursday and Friday.

The Clinical Presentations be 40 minutes, and 20 minutes allowed for questioning.

The Guest Speaker be used at an evening meeting, either with Endocrinology, or with the Winnipeg Medical Society.

Emergency Clinical material arising in the Obstetrical Department during the course, be utilized for demonstration.

9-12 a.m.—CLINICAL GYNAECOLOGY.
CANCER OF THE CERVIX.

Exhibition of Cases, before, during and after treatment, Gynaecological Wards, of Winnipeg General Hospital. Dr. J. D. MacQueen.

TRAUMATISM OF BIRTH CANAL.

Exhibition of Cases, Gynaecology Wards, Winnipeg General Hospital. Prof. D. S. MacKay.

PELVIC INFECTIONS.

Presentation of Cases, Gynaecology Wards, Winnipeg General Hospital. Prof. D. S. MacKay.

2 p.m.—TOXAEMIA OF PREGNANCY.
Dr. Ross Mitchell.

3 p.m.—INTRA-CRANIAL BIRTH INJURY OF FOETUS.

- (a) Obstetrical Significance.
Dr. F. G. McGuinness.
- (b) Diagnosis and Treatment.
Dr. Gordon Chown.

4 p.m.—ABORTION.

(a) Operative vs. Expectant Treatment of Abortion.
Dr. C. R. Rice.

(b) Radical vs. Conservative Treatment.

9 a.m.—CARDIO-VASCULAR DISEASE IN PREGNANCY.
Dr. C. R. Gilmour.

10 a.m.—EXTERNAL CEPHALIC VERSION.
Dr. F. G. McGuinness.

11 a.m.—THE ENDOCRINOLOGICAL INTERPRETATION OF THE MENSTRUAL CYCLE.
Dr. J. D. MacQueen.

2 p.m.—POSTERIOR POSITION OF THE OCCIPUT, DIAGNOSIS AND TREATMENT.
Dr. A. Blondal.

3 p.m.—THE OBSTETRICAL FORCEPS.
Dr. Ross Mitchell.

4 p.m.—PYELONEPHRITIS IN PREGNANCY.

- (a) Obstetrical Significance.
Dr. A. S. Kobrinsky.
- (b) Pathology and Treatment.
Dr. H. D. Morse.

9 a.m.—HAEMORRHAGE OF PREGNANCY.
Dr. Lennox Arthur.

10 a.m.—PELVIC DEFORMITY.
Dr. F. G. McGuinness.

11 a.m.—MENOPAUSAL BLEEDING.
Dr. D. S. MacKay.

2 p.m.—PRENATAL CLINIC, WINNIPEG GENERAL HOSPITAL.
Dr. R. B. Mitchell.

3 p.m.—STERILITY IN THE FEMALE, DIAGNOSIS AND TREATMENT.
Dr. W. F. Abbott.

4 p.m.—DISORDERS OF THE SKIN IN PREGNANCY.
Dr. George Brock.

Nurses' Central Directory

The Nurses' Central Directory has recently been re-organized in the hope that it may gradually be of more service to the community at large.

An endeavor is being made to have all nurses doing Private Duty in Winnipeg register, and the doctors are asked to co-operate by calling through the Directory whenever possible. An effort will always be made to get the nurse requested, if she is available.

At present there are 315 Registered Nurses on the Directory and 25 Practical Nurses; all the latter have had some months of hospital training.

The Private Duty Nurses in Winnipeg have recently voted in favor of eight hour duty in the hospitals, the charge to be Four Dollars (\$4.00) for eight hours, the nurse paying for her own meals. It is felt that this schedule when put into practise will prove more satisfactory to all concerned, and also lessen the unemployment amongst nurses. The help of all interested is asked in the endeavor to make this plan a success.

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Department of Health and Public Welfare

NEWS ITEMS

IMPORTANT FACTORS IN THE CONTROL OF VENEREAL DISEASES: Because of the ever-increasing demand from our lay population in this province for a more intelligent knowledge regarding the spread of the Venereal Diseases and the prevention of same, the Department thought it appropriate to quote from an article prepared by Lida J. Usilton, Statistician, and J. R. Heller, Jr., Assistant Surgeon, of the United States Public Health Service:—

"History contains many references to the efforts of public authorities to prevent the spread of venereal diseases. In the past these consisted principally in the expulsion or isolation of the infected individual, in the regulation of prostitution and the medical examination of prostitutes, with little or no effort made to render the infected persons noninfectious. It was not until the beginning of the World War that the problem began to be attacked with the most powerful of weapons—that of modern treatment.

"The extent to which venereal diseases were undermining the health of the Nation was brought forcibly to the attention of the public by the results of the physical examination of a million draftees of the World War when it was found that 6 out of every 100 men had a venereal infection detectable¹ without the use of serologic blood tests. Throughout the war period large sums of money were spent on venereal disease control work including educational and prophylactic measures.

Prevalence of Syphilis and Gonorrhea

"As a result of finding such alarmingly high prevalence rates of venereal diseases among the draftees, intensive work was begun to determine the extent of their dissemination among the general population. A prerequisite to effective control measures for any communicable disease is a knowledge of the number of infected individuals, and their distribution according to age, sex, color, and social and economic status. Since the spring of 1926 the U. S. Public Health Service in co-operation with several organizations actively engaged in problems of prevention and control of venereal diseases in the United States, at the request of State or local health departments and medical societies, has made a concerted effort to ascertain the extent and distribution of the cases of syphilis and gonorrhea.

"A one-day census of sources of treatment in 49 communities throughout the United States has been made.² These surveys include reports from 39,000 medical sources charged with the health of 29,000,000 persons, or approximately one-fourth of the nation's population. Based on a sample of this size which was selected from socially and geographically representative sections of the country, an estimate can be made of the number of persons in the United States who are day by day under treatment for syphilis and gonorrhea. It is estimated that in the entire country 1,176,000 persons with venereal disease are constantly under observation or treatment, 493,000 for gonorrhea and 683,000 for syphilis. In addition there is a large, though unknown number of infected individuals who neglect to seek treatment or who do not come under the observation of an authorized medical source of treatment. In fact, in a number of large cities it has been found that twice as many individuals seek treatment from druggists as come to an authorized medical source for treatment.³

Incidence of Syphilis and Gonorrhea

"Simultaneously with determining the prevalence of syphilis and gonorrhea, or the number of individuals constantly under medical care, information was obtained regarding the number of fresh infections

which occur each year. These data were desired to establish a base line against which future studies might be projected so that health authorities could ultimately foretell the effectiveness of preventive and control measures in a given locality. It was found that annually in the United States 4 per 1,000 population are acquiring syphilis and 8 per 1,000 are acquiring gonorrhea. These rates represent only those individuals who actually seek medical care early in their infection. Thus, there are approximately 1,555,000 fresh infections of venereal disease in the United States each year, 518,000 cases of early syphilis and 1,037,000 cases of acute gonorrhea. In addition to these freshly infected individuals who seek treatment there is each year a second million who come under treatment for the first time after their infection has reached the chronic stage.

"This astoundingly high proportion of the country's population definitely known to be infected should awaken a responsibility in every citizen to combine in an effective program for the eradication of these diseases.

Age and Sex of Infected Individuals

"Next consider in detail the estimate that at least one-half million people are contracting syphilis each year. Approximately twice as many men as women acquire the disease. The highest frequency occurs between the ages of 16 and 35 years. Thus, if present conditions, continue nine out of every 1,000 boys and girls reaching the ages of 16 to 20 will be infected with syphilis, and between the ages of 21 and 25, twelve out of every 1,000 will be infected.² One is justly apprehensive when these rates are applied to the female population, indicating as they do that at any one time approximately 186,000 of the potential mothers of the United States have syphilis. Loss of the offspring of a syphilitic mother is four times more frequent than among non-syphilitic mothers.⁴ There is no stronger argument than this in support of a more effective control program.

Potential Treatment Problem Throughout Life

"The relative effectiveness of chemical prophylaxis has been evaluated from time to time by naval and military authorities. There is considerable doubt, however, as to the possible efficacy of such prophylactic methods applied in accordance with printed directions. In fact, today there is a general acceptance of the dictum that the ultimate control of syphilis depends principally on the early recognition and adequate treatment of all those infected. With the adoption of modern treatment as the principal means of controlling the disease one is confronted with two problems—how to induce every infected person to seek treatment early and how to keep each patient under treatment until he is rendered noninfectious. Although adequate, continuous treatment with arsphenamine and heavy metal in the early stages of the disease secures approximately 80 per cent "cures" and a minimum possibility of transmission of the disease through infectious relapse, only 16 per cent of the patients with early syphilis remain under treatment for a sufficient length of time to obtain the maximum benefit. A recent study of the treatment records of five of the large syphilis clinics of the country, fairly well equipped with social service follow-up revealed that 84 per cent of the patients who seek treatment during the early stages fail to remain under treatment until the disease is rendered non-infectious.

"Crediting all treatment sources with as much success as that obtained in these five clinics, and adopting Bruusgaard's experience to determine the proportion of "spontaneous cures" among untreated syphilites,⁵ there exists an ever accumulating group of inadequately treated syphilites who probably will exper-

ience ultimately one or more of the late crippling manifestations of the disease. It has been estimated that of every 1,000 individuals who reach 45 years of age 70 will have had syphilis and will have failed to obtain sufficient treatment for its control and thus will be a potential treatment problem throughout life. Therefore, it cannot be too strongly urged that every infected individual seek treatment early and remain under therapy until he has been adequately treated. Not only is more accomplished for the patient in the early stage of the disease but it is the most opportune time for preventing the spread of the infection.

The Duty of the Private Practitioner

"The private practitioner has the greatest opportunity to serve in this control work for it is he who usually sees the patient in the early stages. The opportunity is his to give the patient correct advice so that the latter will protect his own future and that of the individuals with whom he comes in contact. It is essential that the physician advise the patient regarding the seriousness of his disease, the necessity for persuading the source of his infection to seek treatment, and to acquaint him with the promise which adequate continuous treatment holds in terms of "cure" as well as the penalty involved in haphazard, inadequate treatment.

"Throughout the United States two-thirds of the patients under treatment for venereal diseases are in the hands of private practitioners.² It is true that many of these patients are being treated by specialists, but unless properly advised by the first physician to whom he goes, rarely does the infected individual assume the right attitude toward his infection until after the development of late manifestations.

Relationship of Syphilis to Other Communicable Diseases

"Communicable diseases are reported to the Public Health Service from practically every State. Notification is authorized by State law and while incomplete, at least some idea is given as to the relative frequency of syphilis and gonorrhea in comparison with other communicable diseases such as tuberculosis, scarlet fever, typhoid fever, diphtheria, poliomyelitis, and smallpox. The U. S. Public Health Service estimates that a minimum of 518,000 individuals are freshly infected with syphilis each year. Based on morbidity reports from 26 States in the United States it is estimated that there are 131,000 new cases of tuberculosis each year. Great progress has been made in the control of tuberculosis even though there is no known specific treatment. Furthermore, tuberculosis is much more easily spread since it does not require the intimate contact necessary to acquire syphilis. On the contrary there is no evidence that syphilis generally has declined in recent years. A resurvey of 17 of the originally surveyed communities showed that the prevalence rate for syphilis has increased 3.4 per cent with nearly a 10 per cent increase in the number of individuals infected.² It is realized however, that any statement with regard to the trend of syphilis in the United States must be made subject to correction when the results of a larger number of resurveys are made available. Today, on the basis of incidence, syphilis as a public health problem is four times greater than that of tuberculosis, 12 times greater than that of diphtheria, 23 times greater than that of typhoid fever, and 69 times greater than that of poliomyelitis. Smallpox, once a real curse to the health of the nation, through persistent efforts of health authorities and the efficiency of vaccination, has faded into insignificance in comparison with syphilis.

"No such dramatic statement can be made about syphilis as the cause of death, but it is well known that syphilis masquerades under innumerable causes. Persistent efforts have been made to find out the

extent to which syphilis is the primary cause of death and it has been variously placed by different workers from the top of the list to a relatively insignificant position."

NOTE: The final instalment of this article, which will take care of "Standard treatment procedures" and "Prevention of Prenatal Transmission of Syphilis," will be published in the next issue of the "Review" under the Department of Health and Public Welfare NEWS ITEMS.

* Read by Dr. J. R. Heller, Jr., before Conference of Venereal Disease Workers, November 19, 1935, Mountainside Hospital, Montclair, New Jersey.

REFERENCES

- (1) U. S. Surgeon General's Office. Defects Found in Drafted Men. Statistical information compiled from the draft records. Washington, U. S. Government Printing Office, 1920, p. 105.
- (2) Usilton, L. J. Ven. Dis. Inform., Washington, 1935, 16: 147-164.
- (3) Information from the files of the American Social Hygiene Association, New York. (Personal communication).
- (4) Cole, H. N. et al. Ven. Dis. Inform., Washington, 1934, 15: 83-107.
- (5) Bruusgaard, E. Arch. f. Dermat. u. Syph., Berlin, 1929, 157: 309.

COMMUNICABLE DISEASES REPORTED

Urban and Rural - October, 1936.

Occurring in the Municipalities of:

Scarlet Fever: Total 304—Winnipeg 196, St. James 23, Unorganized 14, Saskatchewan 6, Grey 5, Rockwood 5, Hanover 4, St. Boniface 4, Kildonan East 3, Minto 3, Sifton 3, The Pas 3, Assiniboia 2, Brandon 2, Brooklands 2, Carman 2, Grandview Rural 2, Harrison 2, Rhineland 2, St. Vital 2, Turtle Mountain 2, Woodlands 2, Archie 1, Dufferin 1, Kildonan North 1, Kildonan West 1, Louise 1, Lorne 1, Lawrence 1, Macdonald 1, Portage Rural 1, Springfield 1, Strathclair 1, St. Anne 1, St. Paul West 1, Transcona 1, Westbourne 1.

Chickenpox: Total 196—Winnipeg 117, St. Boniface 14, Macdonald 11, Kildonan West 8, Unorganized 7, Springfield 6, Brandon 5, Flin Flon 5, Franklin 4, Strathclair 4, Stonewall 3, Fort Garry 2, St. James 2, Daly 1, Ethelbert 1, Kildonan East 1, Morton 1, Pipestone 1, Rivers 1, Roland 1 (Late Reported: September, Brandon 1).

Measles: Total 184—Virden 59, Stonewall 25, Minto 20, St. Andrews 20, Wallace 12, Rosedale 10, Rockwood 7, St. Clements 7, Grandview Rural 5, Winnipeg 4, Norfolk South 3, Unorganized 3, Brandon 1, Flin Flon 1, Grey 1, Kildonan East 1, Louise 1, Minota 1, Pipestone 1, Woodworth 1 (Late Reported: August, Portage Rural 1).

Anterior Poliomyelitis: Total 174—Woodworth 14, Winnipeg 13, St. Boniface 10, Lansdowne 6, St. Clements 6, Victoria 6, Brandon 8, Louise 5, McCreary 5, Lansdowne 4, Rosburn Rural 5, Argyle 4, Souris 4, Turtle Mountain 4, Cypress South 3, Lorne 3, Morton 3, Neepawa 3, Rosedale 3, Sifton 3, Cypress North 2, Elton 2, Franklin 2, Harrison 2, Langford 2, Morden 2, Morris Rural 2, Portage City 2, Stanley 2, Rivers 2, Strathcona 2, Whitehead 2, Albert 1, Garson Village 1, Kildonan East 1, Kildonan West 1, Montcalm 1, Norfolk North 1, Oak Lake 1, Portage Rural 1, Roland 1, Springfield 1, St. Andrews 1, The Pas 1, Unorganized 1, Cornwallis 1 (Late Reported: August, Boissevain 1, Morton 1, September, Grey 3, St. Boniface 3, Whitehead 2, Neepawa 2, Elton 1, Emerson 1, Kildonan East 1, Langford 1, Louise 1, Norfolk North 1, Portage City 1, Rosburn Rural 1, Rosedale 1, Sifton 1, Springfield 1, Stanley 1).

Tuberculosis: Total 48—Winnipeg 10, Unorganized 9, St. Vital 3, Victoria 2, St. James 2, St. Boniface 2, Portage Rural 2, Bifrost 1, Cartier 1, Dauphin Rural 1, Ellice 1, Ethelbert 1, Franklin 1, Kildonan

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East 1, Kildonan West 1, Minitonas 1, Mossy River 1, Rosedale 1, Selkirk 1, Souris 1, Springfield 1, Stonewall 1, St. Laurent 1, Whitemouth 1, Winnipegosis 1.

Mumps: Total 40—North Norfolk 27, Winnipeg 9, Minto 2, McDonald 1, Wallace 1.

Whooping Cough: Total 33—Winnipeg 12, St. Clements 14, Unorganized 3, McDonald 1, St. Paul East 1 (Late Reported: September, Unorganized 2). M

Diphtheria: Total 12—Winnipeg 8, Mossy River 1, Rosser 1, St. James 1, The Pas 1.

Erysipelas: Total 12—Winnipeg 6, Kildonan East 1, Killarney 1, Shoal Lake Village 1, St. James 1, St. Vital 1, Transcona 1.

German Measles: Total 7—Unorganized 4, Roland 3.

Typhoid Fever: Total 6—Cartier 1, Hanover 1, Rhine-land 1, Unorganized 1, Whitemouth 1 (Late Reported: Westbourne 1).

Septic Sore Throat: Total 4—Whitehead 3, Brandon 1.

Diphtheria Carrier: Total 3—Winnipeg 2, Lawrence 1.

Influenza: Total 3—(Late Reported: May, Bifrost 1; June, Bifrost 1, July, Albert 1).

Para Typhoid: Total 2—Winnipeg 1, Cartier 1.

Puerperal Fever: Total 2—Armstrong 1, Grandview Town 1.

Cerebrospinal Meningitis: Total 1—Winnipeg 1.

Lethargic Encephalitis: Total—1 (Late Reported: August, Glenwood 1).

DEATHS FROM ALL CAUSES IN MANITOBA For the Month of September, 1936.

URBAN—Cancer 35, Tuberculosis 13, Pneumonia 8, Syphilis 4, Infantile Paralysis 2, Diphtheria 1, Influenza 1, Lethargic Encephalitis 1, Measles 1, Typhoid Fever 1, all others under one year 2, all others 162, Stillbirths 7. Total 238.

RURAL—Cancer 24, Tuberculosis 9, Pneumonia 8, Infantile Paralysis 7, Influenza 3, Measles 3, Typhoid Fever 1, Syphilis 1, all others under 1 year 8, all others 170, Stillbirths 12. Total 246.

INDIAN—Tuberculosis 17, Measles 7, Pneumonia 6, Influenza 2, Lethargic Encephalitis 1, all others under 1 year 3, all others 11. Total 47.

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Medical Library University of Manitoba

A summary of the contents of some of the journals available for practitioners, submitted by the Faculty of Medicine of the University of Manitoba. Compiled by T. E. HOLLAND, B.Sc., M.D. (Man.), F.R.C.S. (Edin.).

"The Lancet"—October 17th, 1936.

"Anorexia Nervosa"—by John A. Ryle, M.D., F.R.C.P., London.

"The Lancet"—October 3rd, 1936.

"A Case of Botulism"—by R. S. Aitken, M.B., M.R.C.P., B. Darling, M.D., M.R.C.P., and A. A. Miles, M.R.C.P.

Clinical and Post-Mortem findings are given and a full report of the bacteriological investigation of the suspected foodstuffs.

"Specific" and "Non-Specific" Treatment of Boils: With Special Reference to the results of treatment by Staphylococcal Toxoid"—by Robert Klaber, M.D., M.R.C.P., Skin Department, St. Bartholomew's Hospital.

The authors experience is that the best treatment for boils is removal of the underlying cause, and that oxford has no evident advantage over "Non-Specific" treatments.

"Palpitation"—by Doris M. Barker, M.D., M.R.C.P.

Palpitation may be the main symptoms in patients without physical signs of cardiovascular disease. It is associated with an array of complaints expressive of physical and nervous exhaustion.

"The Lancet"—November 7th, 1936.

Mandelic Acid in the Treatment of Pyelitis in Childhood"—by G. H. Newns, M.D., M.R.C.P., and Reginald Wilson, M.D.

Ammonium Mandelate has been used with success. The urine is rapidly rendered sterile.

Acute Perforative Appendicitis in an Infant of Twenty Days"—by Roland W. John, M.R.C.S., England.

Child died after seven days illness.

The Post-Graduate Medical Journal"—October, 1936. "Bladder Neck Obstruction in General Practice"—by George Y. Feggeter, M.S., F.R.C.S.

An excellent article giving symptoms, routine examination, and alternative methods of treatment.

A note on the Treatment of Hypertrophic Pyloric Stenosis"—by David Levi, M.S., F.R.C.S.

Anatomy of Approach to the Abdomen"—by H. H. Greenwood, F.R.C.S.

The Practitioner"—November, 1936.

This number contains a symposium on Diseases of the Nose and Throat.

The Big Airway"—by T. B. Layton, M.S., F.R.C.S.

Chronic Sore Throat"—by E. Watson Williams, M.C., Ch.M., F.R.C.S. (E.).

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"Hoarseness"—by F. W. Watkyn-Thomas, B.Ch., F.R.C.S.

"The Treatment of Nasal Catarrh and its Sequels"—by W. M. Mollison, C.B.E., M.Ch., F.R.C.S.

"Chronic Nasal Sinusitis and its Treatment"—by R. Scott Stevenson, M.D., F.R.C.S. (E.).

"Surgical Aspects of Croup in Childhood"—by James Crooks, F.R.C.S.

The following articles are also of interest.

"A Review of Recent Progress in the Chemotherapy of Septicaemia"—by E. C. Dodds, M.D., F.R.C.P.

This article deals with the group of substances of the nature of Para-Aminobenzinesulphonamide and sold under the names of "Prontosil," "Rubiazol," etc., which have been used in Germany, France, and England with dramatic results.

In Erysipelas, puerperal fever, boils, osteomyelitis, etc., the results have been uniformly good.

"The Problem of Nutrition"

—A Review by V. H. Mottram, M.A., Professor in Physiology in King's College of Household and Social Science.

"Sound Nutrition is the foundation of Public Health."

The Three Volumes issued by the Committee of the League of Nations are discussed.

"The Nutritive Value of British Beers"—by W. F. Christie, M.D.

"The Canadian Medical Association Journal"—

November, 1936.

"The Mind and Character of Lister"—by Edward Archibald, B.A., M.D., F.R.C.S. (Eng.).

The fifth Listerian Oration delivered at Victoria, June, 1936.

"The Radiological Treatment of Cancer, 1929-1935, IV. Carcinoma of the Lips"—by G. E. Richards, M.D., F.R.C.P. (C.), Professor of Radiology, University of Toronto.

Illustrated by numerous photographs.

"Studies in Mineral Metabolism." II. Calcium and the Kidney — by Bruce Chown, M.D., Margaret Lee, B.Sc., and John Teal, Winnipeg.

"Certain Interesting Cases of Haematuria"—by N. E. Berry, M.D., Kingston.

"The New England Journal of Medicine"—
October 22nd, 1936.

"The Necessity for Use of Splints at Certain Stages in the Treatment of Infections of the Hand with a Demonstration of some of the Newer Types"—by William E. Browne, M.D.

"Diseases and Injuries of the Hip Joint"—by R. Nelson Hatt, M.D.

"Some Considerations of the Problems of Wound Healing"—by Mont R. Reid, M.D.

Well illustrated by diagrams and pictures.

"The New England Journal of Medicine"—
November 5th, 1936.

"Occupational Skin Disease—A preventable disease and a challenge to Modern Preventive Medicine"—by C. Guy Lane, M.D.

"The Clinical Journal"—November, 1936.

"High Blood Pressure"—by J. D. S. Cameron, M.D., F.R.C.P.E., Edinburgh.

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